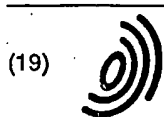


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Shampoozusammensetzung

Composition sous forme de shampooing

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Description

BACKGROUND OF THE INVENTION

5 The present invention relates to shampoo compositions, and more particularly to shampoo compositions containing non-volatile silicone materials which condition the hair leaving it softer and more manageable.

When washing the hair with conventional shampoo compositions, the natural oils are removed together with the dirt and unwanted oils. When too much of the natural oil is removed, for example by especially frequent washing, the hair becomes less easy to comb or style, and subject to static build-up causing "flyaway".

10 Hair conditioners have been developed to try to restore the condition of the hair. These compositions are normally applied to the hair after shampooing, left on the hair for a period of time and rinsed off. This process is time consuming and expensive since two separate products are needed.

Conditioning shampoos containing cationic conditioning agents have been disclosed for example in EP 18 717 (Unilever). These cationic agents confer some conditioning benefit on the hair, but are often thought to leave a residue 15 on the hair, which may cause dulling on dry hair.

Silicone oils are known to be conditioning agents and their use in conditioning shampoos has been proposed for example in EP 74 264 (Unilever) and EP 77 920 (Kao). However, it has been found that care is needed when formulating silicone containing shampoos as the compositions are often unstable and the silicone oil tends to separate out.

Conventional pearler materials such as ethylene glycol stearates have been used to suspend silicone materials 20 (EP 181 773, Procter & Gamble). These pearlisers are formed by cooling an aqueous emulsion of liquid ethylene glycol mono- and/or di-stearate, giving rise to a range of waxy crystal leaflets or needles having a range of different sizes and crystal habits. It is difficult to obtain a narrow size distribution, and even when concentrated pearler pastes are obtained commercially, control of the crystal habit is not assured. Pearler crystals have been found to separate when incorporated in shampoos with the dual function of pearlising the composition and suspending other materials.

25 Titanium dioxide coated mica particles on the other hand are free of this problem of instability, in part because the process of manufacture may be regulated to ensure a tighter size distribution, and also because the dry particles may easily be sieved.

In addition, in GB2015 562, there is described a shampoo composition which is capable of suspending finely divided water insoluble powder, which comprises an ammonium salt or organic amine salt of an anionic surfactant, an ammonium 30 salt or an organic amine salt of water soluble acrylic acid, a fatty acid alkanolamide, and a lower alcohol, glycol, or alkanolamine stabilizer.

We have found that a stable, pearly shampoo composition comprising insoluble non-volatile silicone may be obtained by including a suspending polymer, as defined below to prevent the silicone "creaming" to the top of the bottle in storage, and also to prevent the particles of titanium dioxide coated mica from settling.

35 The invention accordingly provides an aqueous shampoo composition comprising in addition to water

(a) from 2 to 40% by weight of surfactant chosen from anionic, nonionic or amphoteric surfactant, or mixtures thereof;

(b) from 0.01 to 10% by weight of insoluble, non-volatile silicone;

40 (c) from 0.1 to 5% by weight of a suspending polymer chosen from polyacrylic acid, cross-linked polymers of acrylic acid, copolymers of acrylic acid with a hydrophobic monomer, copolymers of carboxylic acid - containing monomers and acrylic esters, cross-linked copolymers of acrylic acid and acrylate esters, and heteropolysaccharide gums; and

45 (d) from 0.01 to 5% by weight of titanium dioxide coated mica.

DETAILED DESCRIPTION OF THE INVENTION(a) Surfactant

50 The composition according to the invention comprises a surfactant chosen from anionic, nonionic or amphoteric surfactant or mixtures thereof.

Suitable anionic surfactants are the alkyl sulphates, alkyl ether sulphates, alkaryl sulphonates, alkyl succinates, alkyl sulphosuccinates, N-alkoyl sarcosinates, and alpha-olefin sulphonates, especially their sodium, magnesium, 55 ammonium and mono-, di- and triethanolamine salts. The alkyl groups generally contain from 8 to 18 carbon atoms and may be unsaturated. The alkyl ether sulphates may contain from one to 10 ethylene oxide or propylene oxide units per molecule, and preferably contain 2 to 3 ethylene oxide units per molecule.

Examples of suitable anionic surfactants include sodium lauryl sulphate, sodium oleyl succinate, ammonium lauryl sulphosuccinate, ammonium lauryl sulphate, sodium dodecylbenzene sulphonate, triethanolamine dodecylbenzene sul-

phonate and sodium N-lauryl sarcosinate. The most preferred anionic surfactants are sodium lauryl sulphate, sodium lauryl ether sulphate 2EO and 3EO, ammonium lauryl sulphate and ammonium lauryl ether sulphate 1EO, 2EO and 3EO.

The nonionic surfactants suitable for use in the composition of the invention may include condensation products of aliphatic (C₈-C₁₈) primary or secondary linear or branched chain alcohols or phenols with alkylene oxides, usually ethylene oxide and generally 6-30 EO.

Other suitable nonionics include mono or di alkyl alkanolamides or alkyl polyglucosides. Examples include coco mono or diethanolamide, coco mono isopropanolamide, and coco di glucoside.

The amphoteric surfactants suitable for use in the composition of the invention may include alkyl amine oxides, alkyl betaines, alkyl amidopropyl betaines, alkyl mono- or dialkanolamides, alkyl sulphobetaines, alkyl glycinate and alkyl carboxyglycinates, wherein the alkyl groups have from 8 to 18 carbon atoms. Examples include lauryl amine oxide, cocomonethanolamide, cocodiethanolamide, cocamidopropyl betaine, cocodimethyl sulphopropyl betaine and preferably cocobetaine.

The surfactants are present in the shampoo composition of the invention in an amount of from 2 to 40% by weight, and preferably from 5 to 30% by weight.

If an amount of less than 2% by weight of surfactant is present in the composition, inadequate foaming is achieved, and if more than 40% by weight is present, no further increase in cleansing power or foaming ability is observed.

(b) Silicone

The shampoo composition of the invention also comprises an insoluble, non-volatile silicone, which may be a polyalkyl siloxane, a polyalkylaryl siloxane, or mixtures thereof. The silicone should be insoluble in the matrix of the shampoo.

Suitable polyalkyl siloxanes include polydimethyl siloxanes having a viscosity of from 5 to 100,000 mPa's (5 to 100,000 centistokes) at 25°C. These siloxanes are available commercially from the General Electric Company as the Viscasil series and from Dow Corning as the DC 200 series. The viscosity can be measured by means of a glass capillary viscometer as set forth in Dow Corning Corporate Test Method CTM0004 July 20, 1970.

Also suitable is polydiethyl siloxane.

The polyalkylaryl siloxanes which may be used in the shampoo compositions of the invention include polymethylphenyl polysiloxanes having a viscosity of from 15 to 65 mPa's (15 to 65 centistokes) at 25°C. These siloxanes are available commercially from the General Electric Company as SF 1075 methyl phenyl fluid or from Dow Corning as 556 Cosmetic Grade Fluid.

Also suitable are silicone gums, such as those described in US 4 152 416 (Spitzer), and on General Electric Silicone Rubber product Data Sheet SE 30, SE 33, SE 54 and SE 76. "Silicone gum" denotes polydiorganosiloxanes having a molecular weight of from 200,000 to 1,000,000, and specific examples include polydimethyl siloxane copolymer, polydimethyl siloxane/diphenyl/methylvinylsiloxane copolymer, polydimethylsiloxane/methylvinylsiloxane copolymer and mixtures thereof.

Further examples of insoluble, non-volatile silicones suitable for use in the compositions of the invention are the polyaminofunctional silicones such as DC 929, available from Dow Corning.

By polyaminofunctional silicone is meant polyalkyl or polyalkylaryl siloxane in which the silicone chain is at least partly substituted by -NNR¹ wherein R and R¹ are the same or different and are H, alkyl or phenyl.

The siloxanes described above may be incorporated directly into the shampoos of the invention or may be added as a preformed emulsion, such as BY22-007 or BY22-022 available from Toray Silicone Co. Limited.

The shampoo compositions of the invention contain from 0.01 to 10% by weight, preferably from 0.5 to 5% by weight, of insoluble, non-volatile silicone. If less than 0.01% by weight is present in the composition, little conditioning benefit is observed, and if more than 10% by weight is present, the hair will appear greasy.

(c) Suspending polymer

The composition of the invention comprises from 0.1 to 5% by weight, preferably from 0.2 to 3%, of a suspending polymer chosen from polyacrylic acid, cross-linked polymers of acrylic acid, copolymers of acrylic acid with a hydrophobic monomer, copolymers of carboxylic acid - containing monomers and acrylic esters, cross-linked copolymers of acrylic acid and acrylate esters, and heteropolysaccharide gums.

Polyacrylic acid is available commercially as Carbopol 420, Carbopol 488 or Carbopol 493 (Goodrich). Polymers of acrylic acid cross-linked by a polyfunctional agent which are suitable for use in the shampoo compositions of the invention include those available commercially as Carbopol 910, Carbopol 934, Carbopol 940, and Carbopol 941 (Goodrich).

An example of a suitable copolymer of a carboxylic acid containing monomer and acrylic esters is Carbopol 1342 (Goodrich). Suitable cross-linked polymers of acrylic acid and acrylate esters are Pemulen TR1 or Pemulen TR2. A suitable heteropolysaccharide gum is xanthan gum, for example that available as Kelzan mu.

The suspending polymers generally have a negative charge in the shampoo system, and will uncoil and take on an extended structure. The suspending polymer stabilises the shampoo of the invention and prevents the titanium dioxide coated mica particles from settling, and the silicone from creaming to the top on standing.

5 (d) Titanium dioxide coated mica

The shampoo composition of the invention includes particles of titanium dioxide coated mica. These particles may vary in size from 2 to 150 μm in diameter.

10 In general, smaller particles give rise to a shampoo composition having a pearly appearance, whereas particles having a larger average diameter will result in a glittery shampoo composition.

Suitable particles are those sold under the trade names TIMIRON (Merck) or FLAMENCO (Mearl). Particularly suitable are:

	Average particle size (μm)
TIMIRON MP-45	40-100
TIMIRON MP-47	15-130
20 TIMIRON MP-148	25-150
TIMIRON MP-111	25-100
TIMIRON MP-1001	5-20
TIMIRON MP-1005	<15
25 FLAMENCO REFINA	3-20
FLAMENCO VELVET	5-20
FLAMENCO SATINA	5-25
30 FLAMENCO PEARL	10-35

The shampoo compositions of the invention comprise from 0.01 to 5%, preferably from 0.05 to 3% by weight of titanium dioxide coated mica.

35 CATIONIC CONDITIONING AGENT

The shampoo composition of the invention may also further comprise a cationic conditioning agent.

40 Suitable cationic conditioning agents include the cationic cellulose ethers described in US Patent Nos. 3 816 616 and 4 272 515 and which are available commercially from Union Carbide Corporation as Polymer JR. Other suitable materials are the cationic polygalactomannan gum derivatives described in US Patent No. 4 298 494 which are commercially available under the trade mark Jaguar from Celanese-Stein Hall. An example of a suitable material has the CFTA designation guar hydroxypropyltrimonium chloride and is available under the name Jaguar C13S, which has a degree of substitution of the cationic groups of about 0.13. Other suitable materials include that known as Jaguar C17 (degree of substitution of about 0.25 to 0.31), and Jaguar C16 which is hydroxypropylated cationic guar derivative containing hydroxypropyl substituent groups as well as cationic quaternary ammonium groups. In Jaguar C16, the degree of substitution is 0.11 to 0.16 and the moles of substitution of hydroxypropyl groups is 0.8 to 1.1.

50 Other cationic conditioning agents useful in the shampoos of the present invention include cationic polyamide polymers such as the low molecular weight adipic acid/diethylene-triamine polyamide and the copolymers of vinylpyrrolidone and dimethylaminoethyl methacrylate quaternised with dimethyl sulphate (Gafquat 755, GAF Corporation) described in US Patent No. 4 080 310; the graft cationic copolymer containing N-vinylpyrrolidone, dimethylaminoethyl methacrylate and polyethylene glycol described in US Patent No. 4 048 301; the mineral acid salts of the amono-alkyl esters of homo- and copolymers of unsaturated carboxylic acids having from 3 to 5 carbon atoms described in US Patent No. 4 009 256; and the polymers of etherified starch described in US Patent No. 3 186 911.

55 The high molecular weight polymers sold under the trade mark Merquat by Merck & Co. Inc., are cationic polymers which are also suitable for use in the present shampoos. Representative ones are Merquat 100, a highly charged cationic dimethyldiallylammonium chloride homopolymer, and Merquat 550, a highly charged cationic copolymer prepared with dimethyldiallylammonium chloride and acrylamide. These materials are designated in the CFTA dictionary as Quaternium-40 and Quaternium-41, respectively.

Cationic surfactants such as mono-, di- and tri-alkyl quaternary ammonium salts may also be used as the cationic conditioning agent in the shampoos of the invention. Suitable examples are cetyl trimethylammonium chloride, cetyl trimethylammonium bromide and stearyltrimethylammonium chloride.

5 The cationic conditioning agent is preferably present in the shampoo composition of the invention in an amount of from 0.01 to 5% by weight, most preferably in an amount f from 0.2 to 3% by weight.

OTHER PEARLISING AGENTS

10 The shampoo of the invention can also optionally include a pearlising agent in addition to titanium dioxide-coated mica. Examples of other pearlising agents include ethyleneglycol monostearate, ethylene glycol di-stearate, polyethylene glycol di-stearate (especially PEG-3 di-stearate) and mixtures thereof, in an amount of from 0.01 to 20%, preferably 0.01-0.5% by weight of the shampoo.

It is to be noted that the disadvantages alluded to earlier of using pearlising agents such as those exemplified above are largely overcome when titanium dioxide-coated mica is present as the principle pearlising agent.

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ANTIDANDRUFF AGENTS

The shampoo of the invention can also optionally include an antidandruff agent chosen from zinc pyrithione, 1-hydroxy-2-pyridone (a preferred example of which is Octopirox) and mixtures thereof, in an amount of from 0.01 to 20%, preferably 0.1 to 10% by weight of the shampoo.

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OTHER INGREDIENTS

25 The shampoo of the invention may also include minor amounts of other ingredients such as antibacterial agents, foam boosters, pearlescers, perfumes, dyes, colouring agents, preservatives, thickeners, proteins, polymers, phosphate esters and buffering agents.

USE OF THE COMPOSITION

30 The composition of the invention is intended to be used as a shampoo. The hair is wet in the normal manner, an amount of the shampoo composition, generally about 5ml, is applied to the wet hair, rubbed to obtain a lather. The lather is rinsed from the hair, and shampoo may be reapplied as before, if necessary.

EXAMPLES

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The invention is further illustrated by the following Examples. Where a mixture of ammonium lauryl sulphate and ammonium lauryl ether sulphate is used in the following Examples, the approximate ratio of ALS:ALES is 3:1.

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Exempl 1

	% wt
Ammonium lauryl sulphate/Ammonium lauryl ether sulphate	8.00
Cocodiethanolamide	3.00
lono! butyl hydroxytoluene (BHT)	0.05
BRIPHOS 03D ¹	1.05
Hydrolysed silk protein	0.10
CARBOPOL 1342	0.40
Polyethoxylated lanolin	0.30
JAGUAR C13S	0.30
TIMIRON MP-1005	0.06
Triethanolamine	0.80
Silicone emulsion (50%) ²	6.00
Perfume, preservative	qs
Water	to 100

1. BRIPHOS 03D is a mixture of esters of phosphoric acid and the polyethylene glycol ether of oleyl alcohol.

2. Silicone emulsion comprises 50% by weight silicone oil (60,000 mPa's (60,000 cs)), 4% by weight cetostearyl alcohol and 25% by weight SLES 2EO.

The ammonium lauryl sulphate/ammonium lauryl ether sulphate and the BHT were heated in the main vessel to 5°C to melt the BHT, with constant stirring.

CARBOPOL 1342 was dispersed with stirring in 50% of the water, and the resulting dispersion added to the main vessel.

The polyethoxylated lanolin was melted at 70 to 75°C and added to the main vessel.

The cocodiethanolamide and BRIPHOS 03D were added to the main vessel with stirring.

JAGUAR C13S was dispersed in 35% of the water and added to the main vessel with high shear mixing.

Preservative, hydrolysed silk protein, triethanolamine and perfume were added to the main vessel, followed by the silicone emulsion, and finally the TIMIRON MP-1005.

The shampoo composition of Example 1 was found to be stable at 0°C and at ambient temperature after 6 months storage. Some separation was seen after storage at 37°C and 45°C for 4 months.

Example 2

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	% wt
Ammonium lauryl sulphate/Ammonium lauryl ether sulphate	8.00
Cocodiethanolamide	3.00
BHT	0.05
BRIPHOS 03D	1.05
Hydrolysed silk protein	0.10
Xanthan gum	0.40
Polyethoxylated lanolin	0.30
JAGUAR C13S	0.30
TIMIRON MP-1005	0.06
Triethanolamine	0.80
Silicone emulsion (50%) of Example 1	6.00
Perfume, preservative	qs
Water	to 100

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The ALS/ALES mixture was placed in the main vessel. JAGUAR C13S was dispersed in 90% of the water, and added to the main vessel with high shear mixing.

The polyethoxylated lanolin was melted and added to the main vessel.

Cocodiethanolamide and BRIPHOS 03D were mixed and added slowly to the main vessel. The xanthan gum was added with mixing. The hydrolysed silk protein and triethanolamine were added. The preservative was added. The BHT was dissolved in the perfume and added to the main vessel.

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The silicone emulsion was added, followed by the TIMIRON MP-1005, with rapid stirring.

The shampoo composition of Example 2 was found to be stable at 0°C, at ambient temperature and at 37°C after storage for 6 months.

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Example 3

	% wt
Ammonium lauryl sulphate/Ammonium lauryl ether sulphate	8.00
Polyethoxylated lanolin	0.30
CARBOPOL 1342	0.40
Cocodiethanolamide	3.00
BRIPHOS 03D	1.05
BHT	0.05
JAGUAR C13S	0.30
Hydrolysed silk protein	0.10
Triethanolamine	0.80
TIMIRON MP-1005	0.06
TORAY BY-22022 ³	6.00
Perfume, preservative	qs
Water	to 100

3. TORAY BY-22022 is a commercially available silicone emulsion (50% by weight silicone oil).

The ALS/ALES mixture and BHT were added to the main vessel and heated to melt the BHT. The hydrolysed silk protein was added. CARBOPOL 1342 was dispersed in 50% of the water and added to the main vessel with stirring. Cocodiethanolamide was added very slowly, followed by BRIPHOS 03D.

JAGUAR C13S was dispersed in 45% of the water and added to the main vessel with high shear mixing, Triethanolamine and hydrolysed silk protein were added followed by perfume and preservative. The silicone emulsion was then added, and finally TIMIRON MP-1005 was added with stirring.

The shampoo composition of Example 3 was found to be stable at 0°C, after storage for 6 months.

Example 4

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	% wt
Ammonium lauryl sulphate/Ammonium lauryl ether sulphate	8.00
Polyethoxylated lanolin	0.30
CARBOPOL 1342	0.40
Cocodiethanolamide	3.00
BRIPHOS 03D	1.05
BHT	0.05
JAGUAR C13S	0.30
Hydrolysed silk protein	0.10
Triethanolamine	0.80
TIMIRON MP-45	0.06
Silicone emulsion of Example 1	6.00
Perfume, preservative	qs
Water	to 100

A shampoo composition was made according to the method of Example 1.

30 The shampoo composition of Example 4 was found to be stable after storage for 6 months at 0°C, ambient temperature, 37°C and 45°C.

Example 5

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	% wt
Ammonium lauryl sulphate/Ammonium lauryl ether sulphate	8.00
Polyethoxylated lanolin	0.30
Xanthan gum	0.40
Cocodiethanolamide	3.00
BRIPHOS 03D	1.05
BHT	0.05
JAGUAR C13S	0.30
Hydrolysed silk protein	0.10
TIMIRON MP-111	0.30
Silicone emulsion of Example 1	6.00
Perfume, preservative	qs
Water	to 100

A shampoo composition was made according to the method of Example 2.

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The shampoo composition of Example 5 was found to be stable after 6 months storage at 0°C and at ambient temperature. Slight separation was seen after storage at 37°C for 6 months and at 45°C for 3 months.

Example 6

A shampoo composition using the following ingredients, the methods of Example 3, replacing cocodiethanolamide with cocamidopropyl betaine, and ALS/ALES with sodium lauryl ether sulphate 3EO.

	% wt
Sodium lauryl ether sulphate 2EO	10.00
Cocamidopropyl betaine	4.00
Polyethoxylated lanolin	0.30
JAGUAR C13S	0.30
BRIPHOS 03D	1.05
TIMIRON MP-111	0.06
CARBOPOL 1342	0.40
Hydrolysed silk protein	0.10
BHT	0.05
TORAY BY-22022	4.00
Perfume, preservative	qs
Water	to 100

Example 7

A shampoo composition was prepared using the following ingredients, according to the method of claim 6.

	% wt
Sodium lauryl ether sulphate 2EO	10.00
Cocamidopropyl betaine	4.00
Polyethoxylated lanolin	0.30
JAGUAR C13S	0.30
BRIPHOS 03D	1.05
TIMIRON MP-111	0.06
PEMULEN TR1	0.40
Hydrolysed silk protein	0.10
BHT	0.05
TORAY BY-22022	4.00
Perfume, preservative	qs
Water	to 100

Example 8

A shampoo is prepared with the following ingredients:

	% wt
Ammonium lauryl sulphate/Ammonium lauryl ether sulphate	8.00
Cocamidopropyl betaine	6.50
CARBOPOL 940	0.40
JAGUAR C13S	0.15
Propylene glycol	0.50
Silicone emulsion of Example 1	4.00
BHT	0.05
TIMIRON MP-1001	0.20
Perfume, preservative	qs
Water	to 100

Example 9

A shampoo is prepared with the following ingredients:

	% wt
Ammonium lauryl sulphate/Ammonium lauryl ether sulphate	8.00
Cocamidopropyl betaine	6.50
CARBOPOL 940	0.40
JAGUAR C13S	0.15
Propylene glycol	0.50
Silicone emulsion of Example 1	4.00
Zinc pyrithione	1.00
BHT	0.05
TIMIRON MP-1001	0.20
Ethylene glycol di-stearate	0.10
Perfume, preservative	qs
Water	to 100

Example 10

A shampoo is prepared with the following ingredients:

	% wt
Ammonium lauryl sulphate/Ammonium lauryl ether sulphate	8.00
Cocamidopropyl betaine	6.50
CARBOPOL 940	0.40
JAGUAR C13S	0.15
Propylene glycol	0.50
Silicone emulsion of Example 1	4.00
Octopirox	1.00
BHT	0.05
TIMIRON MP-1001	0.20
Perfume, preservative	qs
Water	to 100

Example 11

A shampoo is prepared with the following ingredients:

	% wt
Ammonium lauryl sulphate/Ammonium lauryl ether sulphate	8.00
Cocamidopropyl betaine	6.50
CARBOPOL 940	0.40
JAGUAR C13S	0.15
Propylene glycol	0.50
Silicone emulsion of Example 1	4.00
Octopirox	1.00
Zinc pyrithione	1.00
BHT	0.05
TIMIRON MP-1001	0.20
Perfume, preservative	qs
Water	to 100

Claims

1. An aqueous shampoo composition comprising, in addition to water

(a) from 2 to 40% by weight of surfactant chosen from anionic, nonionic or amphoteric surfactants, or mixtures thereof;

(b) from 0.01 to 10% by weight of insoluble, non-volatile silicone;

(c) from 0.1 to 5% by weight of a suspending polymer chosen from polyacrylic acid, cross-linked polymers of acrylic acid, copolymers of acrylic acid with a hydrophobic monomer, copolymers of carboxylic acid - containing monomers and acrylic esters, cross-linked copolymers of acrylic acid and acrylate esters, heteropolysaccharide gums, and mixtures thereof; and

(d) from 0.01 to 5% by weight of titanium dioxide coated mica.

2. A shampoo composition according to Claim 1 wherein the anionic surfactant is chosen from sodium lauryl ether sulphate 2EO, sodium lauryl ether sulphate 3EO, ammonium lauryl sulphate, ammonium lauryl ether sulphate 1EO, ammonium lauryl ether sulphate 2EO, ammonium lauryl ether sulphate 3EO, or mixtures thereof.
3. A shampoo composition according to Claim 1 wherein the amphoteric surfactant is chosen from C₈₋₁₈ alkyl amido-propyl betaine, C₈₋₁₈ alkyl betaine, C₈₋₁₈ alkyl mono- or di-alkanolamide, and mixtures thereof.
4. A shampoo composition according to Claim 3 wherein the amphoteric surfactant is cocobetaine.
5. A shampoo composition according to any one of the preceding claims, wherein the insoluble, non-volatile silicone is chosen from the group consisting of polyalkyl siloxanes, polyalkylaryl siloxanes, and mixtures thereof.
6. A shampoo composition according to Claim 5, wherein the insoluble, non-volatile silicone is chosen from the group consisting of polydimethyl siloxane, polymethylphenyl siloxane and mixtures thereof.
7. A shampoo composition according to any one of the preceding claims, wherein the titanium dioxide coated mica has an average particle size of from 2 to 150 µm in diameter.
8. A shampoo composition according to any one of the preceding claims which additionally comprises a cationic conditioning agent.
9. A shampoo composition according to Claim 8, wherein the cationic conditioning agent is present in an amount of from 0.01 to 5% by weight.
10. A shampoo composition according to Claim 8 or Claim 9 wherein the cationic conditioning agent is chosen from cationic cellulose derivatives, cationic guar gum derivatives and mixtures thereof.
11. A shampoo composition according to any one of Claims 8 to 10, wherein the cationic guar gum derivative is guar hydroxypropyltrimonium chloride.
12. A shampoo composition according to any one of the preceding claims, which further comprises a pearlescing agent chosen from the group consisting of ethylene glycol mono-stearate, ethylene glycol di-stearate, polyethyleneglycol di-stearate and mixtures thereof.
13. A shampoo composition according to any one of the preceding claims, which further comprises an antidandruff agent chosen from the group consisting of zinc pyrithione, 1-hydroxy-2-pyridone and mixtures thereof.

Patentansprüche

1. Wässrige Shampoozusammensetzung, umfassend zusätzlich zu Wasser

(a) 2 bis 40 Gewichtsprozent eines Tensids, ausgewählt aus anionischen, nichtionischen oder amphoteren Tensiden oder Gemischen davon;

(b) 0,01 bis 10 Gewichtsprozent unlösliches nichtflüchtiges Silicon;

(c) 0,1 bis 5 Gewichtsprozent eines suspendierenden Polymers, ausgewählt aus Polyacrylsäure, vernetzten Polymeren von Acrylsäure, Copolymeren von Acrylsäure mit einem hydrophoben Monomer, Copolymeren von Carbonsäure enthaltenden Monomeren und Acrylestern, vernetzten Copolymeren von Acrylsäure und Acryl-
testern, Heteropolysaccharidgummen und Gemischen davon; und

(d) 0,01 bis 5 Gewichtsprozent von mit Titandioxid beschichtetem Glimmer.

2. Shampoozusammensetzung nach Anspruch 1, worin das anionische Tensid ausgewählt ist aus Natriumlauryl ethersulfat 2EO, Natriumlauryl ethersulfat 3EO, Ammoniumlaurylsulfat, Ammoniumlauryl ethersulfat 1EO, Ammoniumlauryl ethersulfat 2EO, Ammoniumlauryl ethersulfat 3EO oder Gemischen davon.
- 5 3. Shampoozusammensetzung nach Anspruch 1, worin das amphotere Tensid ausgewählt ist aus C₈₋₁₈-Alkylamido-propylbetain, C₈₋₁₈-Alkylbetain, C₈₋₁₈-Alkylmono- oder Dialkanolamid und Gemischen davon.
4. Shampoozusammensetzung nach Anspruch 3, worin das amphotere Tensid Cocobetain ist.
- 10 5. Shampoozusammensetzung nach einem der vorangehenden Ansprüche, worin das unlösliche nichtflüchtige Silicon ausgewählt ist aus der Gruppe, bestehend aus Polyalkylsiloxanen, Polyalkylarylsiloxanen und Gemischen davon.
6. Shampoozusammensetzung nach Anspruch 5, worin das unlösliche nichtflüchtige Silicon ausgewählt ist aus der Gruppe, bestehend aus Polydimethylsiloxan, Polymethylphenylsiloxan und Gemischen davon.
- 15 7. Shampoozusammensetzung nach einem der vorangehenden Ansprüche, worin der mit Titandioxid beschichtete Glimmer eine durchschnittliche Teilchengröße von 2 bis 150 µm im Durchmesser aufweist.
8. Shampoozusammensetzung nach einem der vorangehenden Ansprüche, die zusätzlich ein kationisches Konditionierungsmittel umfaßt.
- 20 9. Shampoozusammensetzung nach Anspruch 8, worin das kationische Konditionierungsmittel in einer Menge von 0,01 bis 5 Gewichtsprozent vorliegt.
- 25 10. Shampoozusammensetzung nach Anspruch 8 oder Anspruch 9, worin das kationische Konditionierungsmittel ausgewählt ist aus kationischen Cellulosederivaten, kationischen Guargummiderivaten und Gemischen davon.
11. Shampoozusammensetzung nach einem der vorangehenden Ansprüche 8 bis 10, worin das kationische Gûargummiderivat Guarhydroxypropyltrimoniumchlorid ist.
- 30 12. Shampoozusammensetzung nach einem der vorangehenden Ansprüche, weiterhin umfassend ein Perlglanz erzeugendes Mittel, ausgewählt aus der Gruppe, bestehend aus Ethylenglycolmonostearat, Ethylenglycoldistearat, Polyethylenglycoldistearat und Gemischen davon.
- 35 13. Shampoozusammensetzung nach einem der vorangehenden Ansprüche, weiterhin umfassend ein Antischuppenmittel, ausgewählt aus der Gruppe, bestehend aus Zinkpyrithion, 1-Hydroxy-2-pyridon und Gemischen davon.

Revendications

- 40 1. Une composition aqueuse sous forme de shampooing comprenant, outre de l'eau,
 - (a) 2 à 40 % en poids d'agent tensioactif sélectionné parmi des agents tensioactifs anioniques, non ioniques, ou amphotères, ou parmi des mélanges de ceux-ci ;
 - 45 (b) 0,01 à 10 % en poids de silicone insoluble et non volatil,
 - (c) 0,1 à 5 % en poids d'un polymère de suspension sélectionné parmi de l'acide polyacrylique des polymères réticulés d'acide acrylique, des copolymères d'acide acrylique présentant un monomère hydrophobe, des copolymères d'acide carboxylique contenant des monomères et des esters acryliques, des copolymères réticulés d'acide acrylique et des esters d'acrylate, des gommés d'hétéropolysaccharide, et des mélanges de ceux-ci ; et
 - 50 (d) 0,01 à 5 % en poids de mica enrobé de dioxyde de titane.
2. Une composition sous forme de shampooing selon la Revendication 1, dans laquelle l'agent tensioactif anionique est sélectionné parmi du lauryl ethersulfate de sodium 2 OE, du lauryl ethersulfate de sodium 3 OE, du laurylsulfate d'ammonium, du lauryl ethersulfate d'ammonium 1 OE, du lauryl ethersulfate d'ammonium 2 OE, du lauryl ethersulfate d'ammonium 3 OE, ou des mélanges de ceux-ci.
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3. Une composition sous forme de shampooining selon la Revendication 1, dans laquelle l'agent tensioactif amphotère est sélectionné parmi de l'alkylbétaine d'amidopropyle en C₈₋₁₈, de l'alkylbétaine en C₈₋₁₈, du mono- ou dialcanolamide d'alkyle en C₈₋₁₈, et des mélanges de ceux-ci.
- 5 4. Une composition sous forme de shampooining selon la Revendication 3, dans laquelle l'agent tensioactif amphotère est de la cocobétaine.
5. Une composition sous forme de shampooining selon l'une quelconque des Revendications précédentes, dans laquelle la silicone insoluble et non volatile est sélectionnée parmi le groupe composé de siloxanes de polyalkyle, de
10 siloxanes de polyalkylaryle, et de mélanges de ceux-ci.
6. Une composition sous forme de shampooining selon la Revendication 5, dans laquelle la silicone insoluble et non volatile est sélectionnée parmi le groupe composé de siloxane de polydiméthyle, de siloxane de polyméthylphényle, et de mélanges de ceux-ci.
- 15 7. Une composition sous forme de shampooining selon l'une quelconque des Revendications précédentes, dans laquelle le mica enrobé de dioxyde de titane présente une taille moyenne de particules comprise entre 2 et 150 µm de diamètre.
- 20 8. Une composition de shampooining selon l'une quelconque des Revendications précédentes, qui comprend en outre un agent de conditionnement cationique.
9. Une composition sous forme de shampooining selon la Revendication 8, dans laquelle l'agent de conditionnement cationique est présent dans une proportion comprise entre 0,01 et 5 % en masse.
- 25 10. Une composition sous forme de shampooining selon la Revendication 8 ou la Revendication 9, dans laquelle l'agent de conditionnement cationique est sélectionné parmi des dérivés de cellulose cationiques, des dérivés de gomme de guar cationiques, et des mélanges de ceux-ci.
- 30 11. Une composition sous forme de shampooining selon l'une quelconque des Revendications 8 à 10, dans laquelle le dérivé de gomme de guar cationique est de l'hydroxypropyltrimoniumchlorure de guar.
12. Une composition de shampooining selon l'une quelconque des Revendications précédentes, qui comprend en outre un agent de perlement sélectionné parmi le groupe composé de monostéarate d'éthylèneglycol, de distéarate
35 d'éthylèneglycol, de distéarate de polyéthylèneglycol, et de mélanges de ceux-ci.
13. Une composition sous forme de shampooining selon l'une quelconque des Revendications précédentes, qui comprend en outre un agent antipelliculaire sélectionné parmi le groupe composé de pyrithione de zinc, de 1-hydroxy-2-pyridone, et de mélanges de ceux-ci.
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